15 April 1980

MEMORANDUM FOR THE RECORD

25X1 FROM: [redacted]

SUBJECT: Subjective Evaluation Factors, A Proposal

Problem:

What subjective evaluation factors (i.e. qualitative judgements) should DASITT utilize to compare or contrast the various alternative imagery ADP-T system support network?

Discussion:

In recent weeks, the DASITT had identified an alternative, around which a growing consensus is developing, which is likely to be more costly that PM plans, even after these are adjusted upward in resource requirements. Likewise, there are four other alternatives which DASITT had described/costed and for which DASITT believes satisfies at least the minimum user requirements for ADP-T support functions to complete, accurate and timely imagery processing activities. If DASITT does not believe an alternative meets the above test, we must eliminate it from cost and consideration.

We have already used subjectivity and sometimes difficult to quantify parameters in our costing model. But, we are postulating that sufficiently accurate data (model parameters and transaction numbers) has been collected to determine the approximate cost of any alternative support option. Or we will modify such parameters until we are "satisfied" that our model has fidelity and is rational. It thus seems that we are in the arena of cost-effectiveness considerations. I mean, we believe that some alternatives have features which produce a network which is more effective than other alternatives. In other words, each alternative has a different cost-effectiveness ratio (efficiency). What then are some subjective evaluation factors which might be used to develop reasons why some one alternative is superior to some other alternative? 25X1

25X1 [redacted]

[redacted]

Copy 2 of 8

25X1

25X1 [redacted]

Any DASITT alternative can be made as effective as any other alternative if cost and time resources are unconstrained. But cost and time are real and legitimate constraints. Therefore, one alternative is more or less effective than another when cost and time are constrained. Much of [redacted] work has resulted in alternative costing. It has been quantified to the degree possible within DASITT constraints of resources (time and money). But it alone is not enough.

25X1

Solution:

Find subjective factors to evaluate the effectiveness of our alternatives independant of cost. Lets call these factors, Qualitative Effectiveness Factor (QEF's). I propose the following:

1. Maximize the Network's Adaptibility to change. This will be responsive to new imagery collection and exploitation requirements or modifications to organizational responsibility.

2. Maximize the network's compatibility/similarity with program manager and ADP system managers plans. This will reduce dissatisfaction with system performance and requirements satisfaction.

3. Minimize the Network implementation time. This will reduce development risk, improve schedule adherance and milestone accomplishment.

4. Minimize the number of different procedures a user must execute to accomplish a needed function. This will avoid confusion, reduce user dissatisfaction and minimize training.

5. Minimize the quantity of non-planned duplicative and redundant information stored. This not only saves money but increases the opportunity for improved standardization, completeness and accuracy of information (i.e. its not scattered all over the place, out of date or inconsistant).

6. Minimize the quantity and duplication of new software development required. This is conserving of expensive S/W resource, focuses primary responsibility where it should be and improves compatibility and inter-operatibility.

7. Minimize the quantity of duplicative imagery substantive intelligence reports produced. While this seems primarily a PI resource and management issue, ADP-T systems which do not discourage this activity will be more costly and less responsive to user needs, too much information, too many places, may discourage analyst use.

25X1

[redacted]

[redacted]

8. Minimize the number of system locations within the network with 24 hour/day, 7 day/week availability requirements. These are expensive, high-risk systems to produce, require extensive resources to operate and maintain and many such systems will not benefit from the "economies of scale".

Visiting QEF's:

I propose that DASITT rate each alternative against these eight QEF's. I would use four degrees, like poor, fair, good, best with a numeric equivalent of .3, .5, .75, 1.0, respectively. I would like to calculate the alternative QEF "value" on the basis that:

* all QEF"s are of equal weight

* Individual QEF weight is the inverse of rank position

* Individual QEF weight is 1/2 the inverse of rank position.

Summary:

What I've attempted to do above is quantify subjectively to some degree. If this is not desired, an alternative is to simply discuss these factors qualitatively. A final and different approach appears below in a list of considerations DASITT may wish to work against some other way in Section 6 of the report. These are:

a) Ease of Use
b) System Survivability
c) System Development Risk
d) Modularity and Expandability
e) Failure in performance standard
f) Impact of single system (node) failure
g) New telecommunicaitons reliance
h) Access to needed Data provided, how?
i) Completeness of Information, where?
j) Timeliness of update, when?
k) Soft-copy ramifications
l) Ease of new technology transfer and use
m) Avoidance of non-planned duplication
n) Availability requirments (Reliability requirements)
o) Distributed data base features
p) Distributed function processing focus
q) Impact (cost/problems) of capacity underestimation
r) Consequence of failure
s) Adaptibility to new/changing requirements

25X1

Conclusion:

I hope this memo is useful. I would suggest that at any given cost, the alternative with the highest QEF score will be more effective than any other, and this should be the DASITT recommendation. I further suggest that additional resources ($'s and time) expended on the alternative with the highest QEF score will result in an even more effective ADP-T network than would the same amount of resources ($'s and time) spent on an alternative with a lower QEF score. The bottom line is then to assure the network development (select the alternative) which has the highest QEF that our dollar resources between now and 85 can afford. I believe this may well be Alternative 5, but it would be interesting to use the QEF's as I've suggested and find out.

[redacted]

25X1

25X1

Distribution:
Original: [redacted]
Copy 2:
3:
4:
5:
6:
7:
8:

25X1

[redacted]